

Serial No.: 10/763,891
Atty. Docket No.: D5396

REMARKS

Reconsideration of this application as amended is requested. Claims 1-19 are in this application. Claims 1-5 and 9-14 are canceled. The applicant amends claims 6 and 16. The amendment of claim 6 is found in the specification at paragraph [0022]. The amendments of claim 16 is found in the specification at paragraph [0023] and Fig. 5.

No new issue is believed raised by the amendments as they are thought to better distinguish the applicant's invention from the cited art. The applicant respectfully requests the examiner consider any amendment and these remarks and allow the claims. The applicant also incorporates herein the previous Remarks made in response to any previous Office Action into these Remarks.

In the previous response, the examiner stated that the applicant's previous arguments were fully considered but not persuasive. The examiner stated because the module receiver 20 was permanently mounted to the seat frame, the module receiver 20 was now part of the seat frame 42 and the whole assembly shown in Fig. 3 was the seat frame. Ex. Rem. p. 5. The examiner stated that there is no structure in the claim to what constitutes a seat frame as the term "seat frame" is broadly claimed as being within the seat.

While the examiner may give applicant's claims their broadest reasonable meaning, the examiner must apply to the words their ordinary usage as they would be understood by one of ordinary skill in the art. *In re Morris*, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). The examiner's interpretation of claim terms should not be so broad that it conflicts with the meaning given to identical terms in other patents from

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analogous art. *In re Cortright*, 49 USPQ2d 1464, 1467 (Fed. Cir. 1999).

The applicant's use of the term "frame" when applied to a seat back frame follows the meaning readily known to a person of ordinary skill in the art. The term "frame" is a common word with which one skilled in the art for motor vehicle seats would be readily familiar. A frame is "the underlying constructional system or structure that gives shape or strength." Exhibit 1. *Merriam-Webster Online Dictionary*, www.m-w.com/cgi-bin/dictionary (retrieved May 25, 2007). The seat back frame in the motor vehicle industry is a skeleton that gives the seat back its strength and shape. Exhibit 2 reinforces this meaning of "frame" showing the front pages of many examples of patents relating to seat back frames. The meaning is also shown in the Web pages downloaded from several vehicle seat manufacturers in Exhibit 3.

Based on the definition of "frame" and the prior art relating to seat frames, the examiner's interpretation of the term "seat frame" to include a mounted bin is unreasonable. The examiner's interpretation conflicts with the meaning of a seat frame as found in the art. The bin-like module receiver is not a skeletal structure of the seat back. One of ordinary skill in the art would not consider a seat frame 42 with a bin attached to it to be a "seat frame" as proposed by the examiner.

This conclusion is borne out by the disclosure of *Bush et al.* which also does not consider the module receiver part of a seat frame. *Bush et al.* uses the term "seat frame" as defined in the dictionary and as used Exhibits 2 and 3. Fig. 4. *Bush et al.* makes clear that attachment bracket 44 is part of the seat frame 42 by actually saying that it is. Col. 2, l. 31-33; Col. 3, l. 43-55. ("Referring now to FIGS. 3, 4, and 5, the seat back frame 42 includes an attachment bracket 44 connected to or formed as part of

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frame 42.") *Bush et al.*, however, also makes clear that module receiver 20 is not part of the seat back frame like the attachment bracket 44 by actually saying that module receiver 20 is installed and secured to the seat back frame 42. Col.3, l. 51-53.

The examiner's interpretation of the term "within" as related to the seat back frame is unreasonable. The examiner admits that the applicant's receivers 68 in Fig. 3 are not the same as the *Bush et al.* modular receiver 20 but are located at the back exterior of the seat in a similar manner as disclosed by *Bush et al.* P. 6. The examiner first states that the module receiver 20 frame is set in the seat back. P. 3. Later on, the examiner states that the claims do not require the entire seat frame to be enclosed by the seat back, admitting the module receiver 20 frame is not located within the seat back. P. 6.

The examiner effectively deletes the seat frame being enclosed within the seat back, not the receiver. The seat frame being within the seat back is an explicit limitation in the applicant's claims. While an examiner determines the patentability of an invention as claimed with all its limitations, "[i]t is improper to delete explicit limitations from the claim in order to find the residue in the prior art. *In re Schreiber*, 44 USPQ2d 1429,1434 (Fed. Cir. 1997)."

The examiner also states that the tongues 82 of *Bush et al.* extend outwardly from the inner wall of the cabinet. P. 3. The examiner's interpretation of the term "forward slanting section" as recited in the claims is unreasonable. The examiner first states that the forward slanting section is between the seat back 14 and the seat bottom 12. P. 2, 3. The examiner next states: "the inner wall is located opposite the outer wall and adjacent the forward slanting section (see Figure 14)" which is a different location

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from the location previously stated. P. 3. In addition, Fig. 14 shows neither a seat nor a seat back and thus cannot show the forward slanting section of the seat. Figure 14 shows one of the cabinet modules without either the seat or the module receiver 20.

The applicant's claims, however, recite that the forward slanting section is part of the seat back, not the cabinet as shown in Fig. 14 of *Bush et al.* And as part of the seat back, the forward slanting section cannot be between itself and the seat bottom.

The examiner's interpretation of the term "inner wall" as recited in the claims is unreasonable. The examiner states that the tab/tongues extend outwardly from the inner wall of the *Bush et al.* cabinet. P. 3. Later on the examiner states: "the *Bush et al.* tongues clearly extend outwardly from the cabinet, the tongues are also considered to extend from the inner wall of the cabinet." P. 7.

The examiner's states effectively deletes the explicit limitation of the applicant's cabinet inner wall from the claim. The inner wall is: "an inner wall opposite the outer wall and between the cabinet sidewalls and located adjacent the rear of the seat back at the forward slanting section." The applicant's Fig. 5 shows that the cabinet inner wall borders or touches the exterior of the rear of the seat back at the forward slanting section. The applicant's cabinet inner wall does not include the top of the cabinet as recited by the claims. The *Bush et al.* tabs/tongues extend out of the top of the cabinet which is not opposite the outer wall as recited in the claims and adjacent to the rear of the seat back at the forward slanting section and therefore cannot be an inner wall.

The examiner rejected claims 6-8, and 16 as anticipated by *Bush et al.*, U.S. Pat. No. 6,199,948 under Section 102. The examiner restated arguments from his previous Office Action relating to Fig. 14 and the alternate embodiment shown in Figs. 15, 15A.

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The examiner has rejected claim 6 as anticipated by *Bush et al.*, U.S. Pat. No. 6,199,948 under Section 102. The examiner has stated that *Bush et al.* discloses a storage system 120 for use on a car seat back 14. As discussed above, the examiner considers the seat frame to be module receiver 20 and 42 set in the seat back.

Claim 6 is not anticipated by *Bush et al.* Claim 6 as amended recites "a seat frame being located within the seat back;" and "multiple tabs extending outwardly from the cabinet inner wall and being welded to the seat frame within the seat back". By contrast, *Bush et al.* teaches as previously discussed, module receiver 20 frame is not located within the seat back. *Bush et al.* further teaches that tabs from the insert portion 90 releasably engage the module receiver 20, not being welded to the seat frame 42 itself within the seat back. *Bush et al.* also fails to teach multiple tabs extending outwardly from the cabinet inner wall. Because *Bush et al.* does not disclose all of the limitations of claim 6, *Bush et al.* does not anticipate claim 6. Claim 6, as well as claims 7-8 based on their dependency on claim 6, therefore distinguish patentably from *Bush et al.*

Claim 16 is not anticipated by *Bush et al.* as previously discussed for the seat frame. Claim 16 as amended recites "a seat frame having a support column and being located within the seat back" and "multiple receivers attaching directly to the support column of the seat frame." As discussed above, the *Bush et al.* module receiver 20 frame is not located within the seat back and the applicant's seat frame. *Bush et al.* also does not teach multiple receivers attaching directly to the support column of the seat frame.

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Claim 16 as amended also recites: "an inner wall opposite the outer wall and between the cabinet sidewalls and located adjacent the rear of the seat back at the forward slanting section." Claim 16 as amended further recites: "multiple tongues extending outwardly from the cabinet inner wall, each tongue releasably and matingly engaging one of the receivers". *Bush et al.* teaches multiple tongues 82 extending outwardly from the cabinet top, not an inner wall located adjacent to the rear of the seat back at the forward slanting section. Figs. 13, 14, 15A. *Bush et al.* does not show any tongues on its cabinet inner wall. Figs. 11, 12, 15B, 15C, 17B, 18B. Because not all of the limitations of claim 16 are disclosed by *Bush et al.*, claim 16 distinguishes patentably from *Bush et al.*

The examiner rejected claim 15 under Section 103 as unpatentable over *Bush et al.* in view of *Bohnett*. The examiner stated that it would be obvious to one of ordinary skill in the art to add the slots and removable partitions of *Bohnett* to the cabinet of *Bush et al.*

The examiner's proposed combination does not meet all the terms of claim 15. Claim 15 recites: "a seat frame being located within the seat back" "and" "multiple tabs extending outwardly from the cabinet inner wall and welded to the seat frame within the seat back." By contrast, *Bush et al.* recites a module receiver 20 attached to a seat frame with multiple tabs extending from the cabinet top to engage the module receiver, while *Bohnett* discloses removable partitions in slots.

As discussed previously, neither *Bush et al.* nor *Bohnett* teach the module receiver 20 frame is located within the seat back. If the seat frame is within the seat back, the tabs must engage the seat frame within the seat back as well. Therefore, the

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combination that would result from adding the removable partitions that fit within slots of *Bohnett* to the cabinet of *Bush et al.*, as proposed by the examiner, would still lack "a seat frame being located within the seat back;" and "multiple tabs extending outwardly from the cabinet and welded to the seat frame within the seat back" of claim 15. Therefore, claim 15 is patentably distinct from the combination of *Bush et al.* and *Bohnett*.

The examiner rejected claim 17 under Section 103 as unpatentable over *Bush et al.* in view of *Bohnett*. The examiner stated that it would be obvious to one of ordinary skill in the art to add the slots and removable partitions of *Bohnett* to the cabinet of *Bush et al.*

Claim 17 is patentably distinct from the combination of *Bush et al.* and *Bohnett*. The examiner's proposed combination does not meet the terms of claim 17. Claim 17 as amended recites "a seat frame being located within the seat back and having a support column" and "multiple receivers attaching directly to the support column of the seat frame." As discussed above, if module receiver 20 is a seat frame, neither *Bush et al.* nor *Bohnett* teach this seat frame 20 is located within the seat back.

Claim 17 also recites "an inner wall opposite the outer wall and between the cabinet sidewalls and located adjacent the rear of the seat back at the forward slanting section." Claim 17 further recites "multiple tongues extending outwardly from the cabinet inner wall, each tongue releasably and matingly engaging one of the receivers". By contrast as discussed above for claim 16 and incorporated herein, *Bush et al.* recites a module receiver 20 seat frame with multiple tabs extending from the cabinet top to engage the single module receiver. *Bohnett* discloses removable partitions in slots.

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Therefore, the combination that would result from adding the removable partitions that fit within slots of *Bohnett* to the cabinet of *Bush et al.*, as proposed by the examiner, would still lack multiple receivers attaching directly to a support column of a seat frame, with the seat frame being located within the seat back, as well as multiple tongues extending outwardly from the cabinet inner wall of claim 17.

Therefore, claim 17, and claims 18 and 19 based on their dependency on claim 17, are patentably distinct from the combination of *Bush et al.* and *Bohnett*.

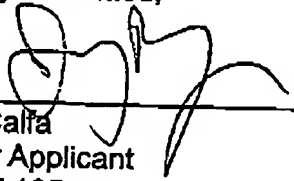
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CONCLUSION

Applicant believes the Claims as amended are in condition for allowance and respectfully requests favorable action by the Examiner.

Respectfully submitted,

Date: June 12, 2007
Warrenville, IL 60555
Tel. No. 630/753-3023



Jeffrey P. Calia
Attorney for Applicant
Reg. No. 37,105

CERTIFICATE OF TRANSMISSION UNDER 37 CFR §1.8

I hereby certify that this **AMENDMENT AFTER FINAL** is being facsimile transmitted to the Patent and Trademark Office on or before 6/12/07 to (571) 273-8300.

Date: 6/12/07



Catherine M. Majewski

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frame

13 entries found for **frame**. The first 10 are listed below.
To select an entry, click on it. For more results, [click here](#).

frame[1,verb]
frame[2,noun]
frame[3,adjective]
A-frame
cold frame
frame of mind

Go

Main Entry: **2**frame

Function: *noun*

1 a : something composed of parts fitted together and united **b** : the physical makeup of an animal and especially a human body :

PHYSIQUE, FIGURE

2 a : the underlying constructional system or structure that gives shape or strength (as to a building) **b** : a frame dwelling

3 obsolete : the act or manner of **framing**

4 a : a machine built upon or within a **framework** <a spinning *frame*> **b** : an open case or structure made for admitting, enclosing, or supporting something <a window *frame*> **c** (1) : a part of a pair of glasses that holds one of the lenses (2) *plural* : that part of a pair of glasses other than the lenses **d** : a structural unit in an automobile chassis supported on the axles and supporting the rest of the chassis and the body

5 a : an enclosing border **b** : the matter or area enclosed in such a border: as (1) : one of the squares in which scores for each round are recorded (as in bowling); *also* : a round in bowling (2) : an individual drawing in a comic strip usually enclosed by a bordering line (3) : one picture of the series on a length of film (4) : a complete image for display (as on a television set) **c** : an inning in baseball **d** (1) :

FRAMEWORK 1a (2) : CONTEXT, FRAME OF REFERENCE

e : an event that forms the background for the action of a novel or play

6 : FRAME-UP

[frame illustration]

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US005509716A

United States Patent [19]

Kolena et al.

[11] Patent Number: **5,509,716**[45] Date of Patent: **Apr. 23, 1996**[54] **VEHICLE SEAT WITH PERIMETER FRAME AND PELVIC CATCHER**

[75] Inventors: David P. Kolena, Bloomfield Hills; Paul A. Glinski, Chesterfield; Robert S. Crane, Waterford; Mladen Humer, Eastpointe; David C. Viano, Bloomfield Hills; Richard J. Neely, Casco, all of Mich.

[73] Assignee: General Motors Corporation, Detroit, Mich.

[21] Appl. No.: 335,591

[22] Filed: Nov. 8, 1994

[51] Int. Cl.⁶ B60R 21/00

[52] U.S. Cl. 297/216.13; 297/452.18; 297/216.1

[58] Field of Search 297/216.1, 216.13, 297/216.14, 452.18, 452.2, 354.12, 452.53, 452.52

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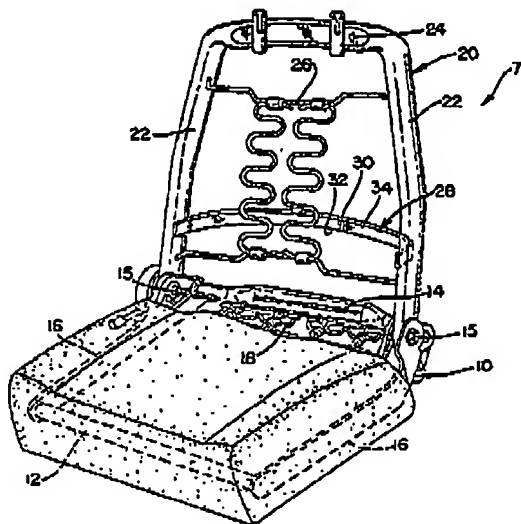
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Primary Examiner—Milton Nelson, Jr.
Attorney, Agent, or Firm—Ernest E. Helms

[57] **ABSTRACT**

A vehicle seat is providing including a seat bottom frame; a generally U-shaped seat back frame with an upper cross member with legs pivotally mounted with respect to the seat bottom frame, the seat back cross member being generally at least approximately 470 millimeters along a line generally parallel to the torso of a seated occupant from an H point of the seated occupant, and the cross member being concavely bowed if under approximately 525 millimeters from the H point of the seated occupant; and a deformable lower cross member having ends fixably connected to the seat back legs being concavely bowed, the cross member having a major dimension oriented generally parallel to the torso of the seated occupant, the lower cross member having an upper and a lower end, the lower cross member upper end being vertically above the H point of a seated occupant when the seat back frame is positioned in a normal seating position and where in a rear crash situation, the lower cross member deforms to pivot its lower end further away from the seat back frame legs than its top end to capture the seated occupant's pelvic region between the lower cross member and the bottom frame.

6 Claims, 2 Drawing Sheets

**Exhibit 2**



US005568961A

United States Patent [19]

Colasanti

[11] **Patent Number:** **5,568,961**[45] **Date of Patent:** **Oct. 29, 1996**[54] **TUBULAR SEAT FRAME**[75] **Inventor:** Arduino Colasanti, Eastpointe, Mich.[73] **Assignee:** Findlay Industries, Troy, Mich.[21] **Appl. No.:** 288,450[22] **Filed:** Aug. 10, 1994[51] **Int. Cl.⁶** B60N 2/02[52] **U.S. Cl.** 297/362.12; 297/452.2;
297/362.13; 297/354.1[58] **Field of Search** 297/362.12, 354.1,
297/362.13, 452.18, 452.2, 463.1[56] **References Cited****U.S. PATENT DOCUMENTS**

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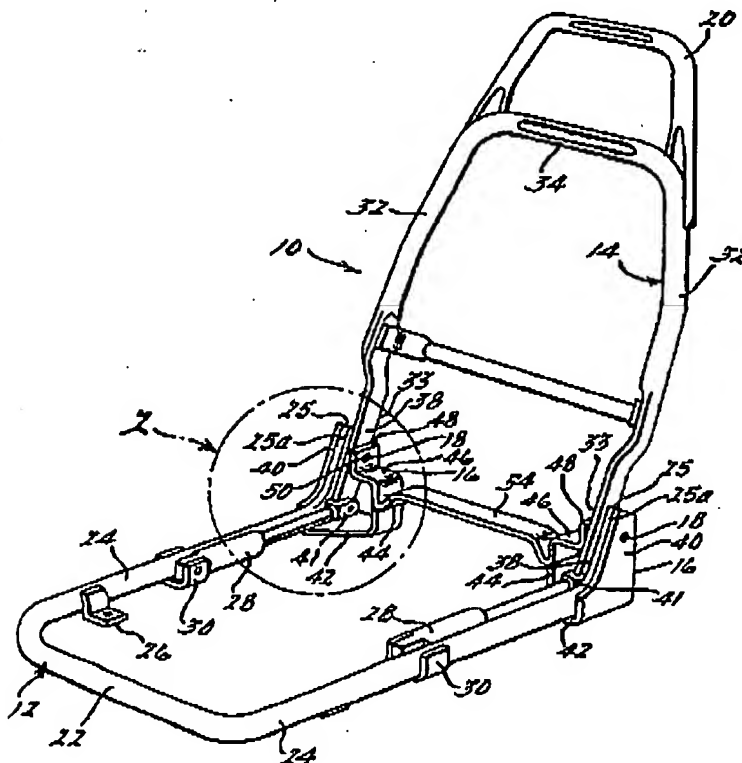
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Primary Examiner—Laurie K. Cranmer*Attorney, Agent, or Firm*—Dinnin & Dunn, P.C.[57] **ABSTRACT**

The device is a tubular seat frame for use in a vehicle application. The seat frame including a generally U-shaped seat base frame connected to a bracket member and a generally U-shaped seat back frame pivotally connected to the seat base frame through the bracket member for variable positioning by means of an adjustment means attached to the lower end of the seat back frame. The bracket member provides an extra wall at the pivot point to further support and retain the seat back frame. The bracket member providing a design for a lightweight seat frame which reduces overall weight while at the same time retaining its strength integrity.

7 Claims, 2 Drawing Sheets



US005636901A

United States Patent [19]

Grilliot et al.

[11] Patent Number: **5,636,901**[45] Date of Patent: **Jun. 10, 1997**

- [54] **AIRCRAFT PASSENGER SEAT FRAME**
- [75] Inventors: Ronald Grilliot, Plantation; Patrick Murphy, Miami, both of Fla.
- [73] Assignee: Aircraft Modular Products, Inc., Miami, Fla.

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 2126476 3/1984 United Kingdom 297/452.18

[21] Appl. No.: 490,791

[22] Filed: Jun. 15, 1995

[51] Int. Cl.⁶ A47C 7/02[52] U.S. Cl. 297/452.18; 297/452.2;
297/452.55; 297/216.1; 297/362.13; 248/188.1[58] Field of Search 297/452.18, 452.2;
297/362.13, 216.1, 216.3, 243, 248, 452.55;
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Primary Examiner—Peter M. Cuomo

Assistant Examiner—Rodney B. White

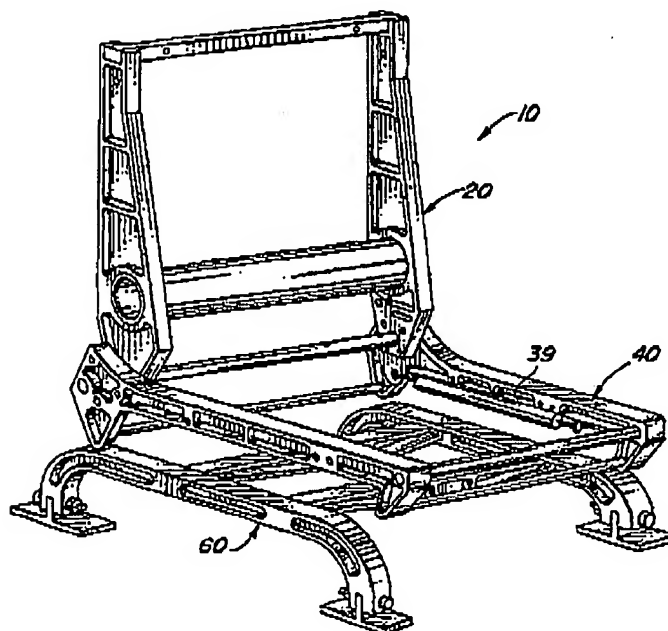
Attorney, Agent, or Firm—Malloy & Malloy, P.A.

[57]

ABSTRACT

An aircraft seat frame including a seat back portion, a seat foundation portion, and a seat base portion, the seat back portion having a pair of generally vertically disposed side rails composed of three interconnected segments, a leading and a trailing edge segments of which are perpendicularly disposed on opposing sides of an interior segment, thereby substantially minimizing an overall weight of the side rails and maximizing the side rails resistance to horizontal bending across a plane of the leading and trailing segments. Further, the seat frame includes a load transference member spanning the side rails so as to evenly distribute a load exerted on only a single of the side rails over both side rails and over the corresponding seat side rails to which the seat back side rails are connected. Further, the frame includes a seat base portion having a pair of seat side rails with support members pivotally secured at opposite ends thereof, the support members being fixedly secured to an underlying support surface.

15 Claims, 2 Drawing Sheets





US005749135A

United States Patent [19]

Crane et al.

[11] Patent Number: 5,749,135

[45] Date of Patent: May 12, 1998

[34] **METHOD FOR EXTRUDING INTEGRAL SEAT BACK FRAME**

[75] Inventors: Robert Scott Crane, Waterford; David Phillip Koleza, Bloomfield Hills; Alan Dean Berg, North Washington, all of Mich.

[73] Assignee: General Motors Corporation, Detroit, Mich.

[21] Appl. No.: 820,598

[22] Filed: Mar. 19, 1997

[51] Int. Cl.⁶ B23P 17/00

[52] U.S. Cl. 29/415; 29/417; 297/452.2; 72/254; 72/256; 72/369; 72/370

[58] Field of Search 29/897.2, 415, 29/417; 297/452.18, 452.19, 452.2; 72/254, 256, 367, 368, 369, 370

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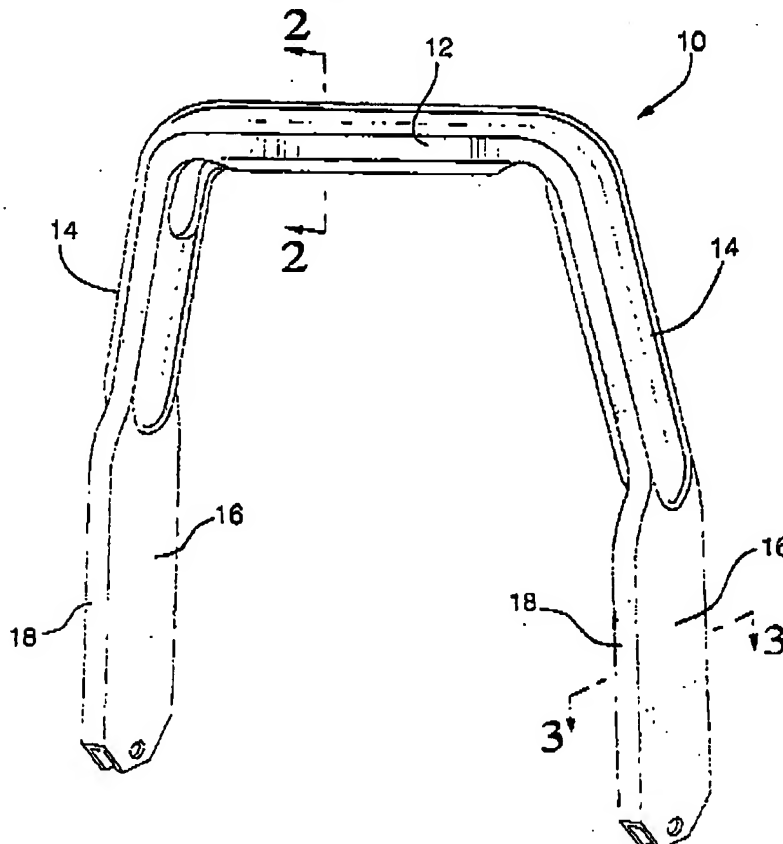
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Primary Examiner—David P. Bryant
 Attorney, Agent, or Firm—Patrick M. Griffin

[57] **ABSTRACT**

A method for producing a U shaped seat back frame from a single extruded blank. The blank's cross section is nearly circular, but with a pair of short, flattened off crests that create a pair of concentric arcs, in cross section. Over a length of each end of the blank, a rectangular cross section, solid mandrel is inserted between the crests and the arcs are flattened against the mandrel. The arcs are flattened into wider side walls, while the crests move apart, without deformation, to create narrower and stiffer walls of a rectangular cross section. Lastly, the U blank with flattened ends is bent into a U shape, creating an upper beam with a nearly circular cross section, and legs with truly flat and rectangular lower ends.

3 Claims, 3 Drawing Sheets





US005769499A

United States Patent [19]

Dudash et al.

[11] Patent Number: 5,769,499

[45] Date of Patent: Jun. 23, 1998

[54] MOTOR VEHICLE SEAT

[75] Inventors: Eugene S. Dudash, Wixom; Mark Stanisz, Waterford; Eric A. Smutterberg, Berkley; L. Keith Hensley, Farmington Hills; Sanford E. Cook, Belleville; Kevin J. Fudala, Dearborn Heights, all of Mich.

[73] Assignee: Lear Corporation, Southfield, Mich.

[21] Appl. No.: 660,523

[22] Filed: Jun. 7, 1996

[51] Int. Cl.⁶ B60N 2/44

[52] U.S. Cl. 297/452.18; 297/391; 297/410

[58] Field of Search 397/452.18, 452.2,
397/215.11, 215.12, 216.1, 216.13, 216.14,
410, 391; 72/411; 29/417, 523, 897.35;
D6/500, 501, 502; 403/242, 278

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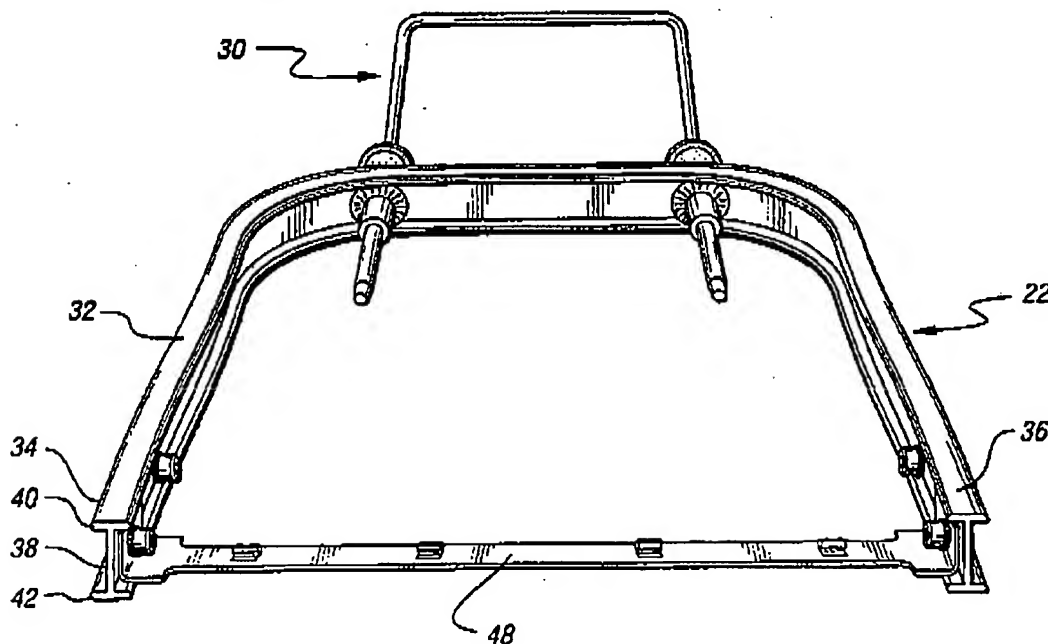
Primary Examiner—Peter R. Brown

Attorney, Agent, or Firm—Brooks & Kushman P.C.

[57] ABSTRACT

The present invention provides an apparatus for supporting a seat back in a vehicle comprising an aluminum I-beam formed in a generally U-shaped configuration, and having opposing ends supported with respect to the vehicle for forming a seat back frame. Also provided is a method of manufacturing a vehicle seat back frame, comprising: a) extruding an aluminum I-beam; b) cutting the I-beam to a desired length; c) age-hardening the I-beam; and d) bending the I-beam into a substantially U-shaped configuration to form a vehicle seat back frame.

6 Claims, 5 Drawing Sheets





US005810446A

United States Patent [19]**Tadokoro**[11] **Patent Number:** **5,810,446**[45] **Date of Patent:** **Sep. 22, 1998**[54] **FRAME STRUCTURE OF SEATBACK**[75] **Inventor:** Takumi Tadokoro, Machida, Japan[75] **Assignee:** Ikeda Bussan Co., Ltd., Ayase, Japan[21] **Appl. No.:** 677,938[22] **Filed:** Jul. 10, 1996[30] **Foreign Application Priority Data**

Jul. 14, 1995 [JP] Japan 7-201334

[51] **Int. Cl.⁶** A47C 7/02[52] **U.S. Cl.** 297/452.18; 297/452.2;
297/452.36[58] **Field of Search** 297/452.18, 452.2,
297/452.31, 452.3, 452.34, 452.36; 138/121;
29/91, 91.1[56] **References Cited****U.S. PATENT DOCUMENTS**

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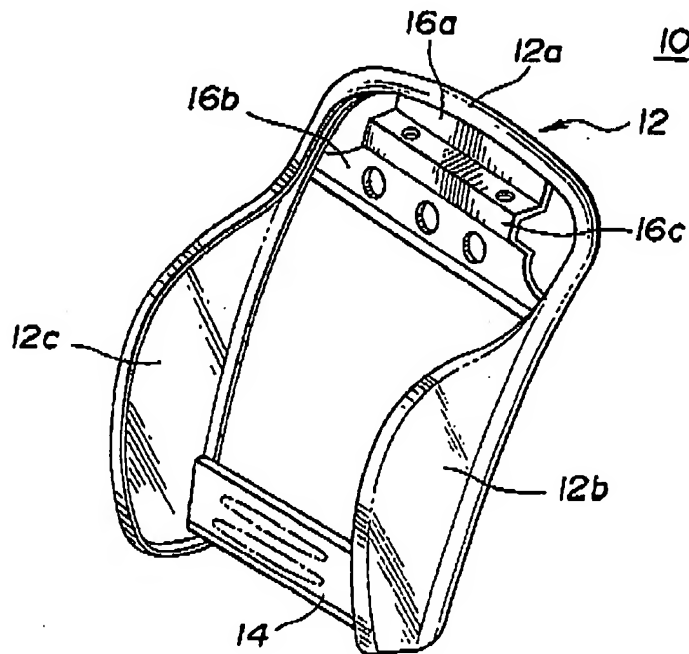
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Primary Examiner—Peter M. Cuomo*Assistant Examiner*—Anthony D. Barfield*Attorney, Agent, or Firm*—Poley & Lardner[57] **ABSTRACT**

A reversed U-shaped base frame for a seatback frame structure is of a monoblock structure, which includes an upper horizontal tubular portion and two side vertical portions. The two side vertical portions extend downward from axially opposed ends of the upper horizontal tubular portion. The base frame is produced from a shaped metal sheet by pressing and curling the same in such a manner that a given portion of the shaped metal sheet, which is shaped to produce the upper horizontal tubular portion, is curled to have a substantially circular cross section. The feature of the invention is that the curled given portion has circumferentially opposed edges which are overlapped each other.

5 Claims, 3 Drawing Sheets



US006082823A

United States Patent [19]**Aumont et al.**[11] **Patent Number:** **6,082,823**[45] **Date of Patent:** **Jul. 4, 2000**[54] **BACKREST FRAMEWORK OF AN
AUTOMOBILE VEHICLE SEAT**[75] **Inventors:** Jean-Claude Aumont, Etrechy; Patrick
Daniel, Paris; Christophe Aufreze,
Marcoussis, all of France[73] **Assignee:** Bertrand Faure Equipments S.A.,
Boulogne Cedex, France[21] **Appl. No.:** 09/286,667[22] **Filed:** Apr. 6, 1999[30] **Foreign Application Priority Data**

Apr. 17, 1998 [FR] France 98 05058

[51] **Int. Cl.⁷** A47C 7/02; B60N 2/42[52] **U.S. Cl.** 297/452.2; 297/452.18;
297/216.13; 297/483; 297/284.1[58] **Field of Search** 297/452.2, 216.13,
297/483, 452.18, 284.1, 484[56] **References Cited****U.S. PATENT DOCUMENTS**

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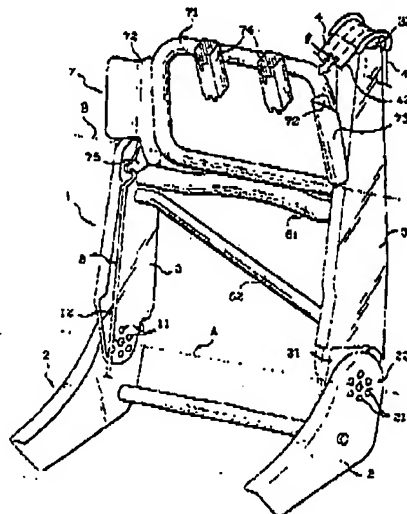
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Primary Examiner—Jose V. Chen*Assistant Examiner*—Rodney B. White*Attorney, Agent, or Firm*—Pollock, Vande Sande &
Amernick

[57]

ABSTRACT

A vehicle seat frame assembly includes two lateral upright side members and a brace connected between the upright side members to form a lower backrest frame. At least one of the upright side members has an upper end and it is rigid from a bottom of the lower backrest frame to the upper end, the upper end further including a point for attaching or passing a seat belt. An upper backrest frame is located above the lower backrest frame and is positioned below the upper end of the at least one upright side member. A hinge is provided for mounting the upper backrest frame at a lower edge thereof to the upright side members for allowing pivotal movement of the upper backrest frame relative to the lower backrest frame.

7 Claims, 3 Drawing Sheets



US006523893B2

(12) **United States Patent**
Kämpfer et al.

(10) Patent No.: **US 6,523,893 B2**
(45) Date of Patent: **Feb. 25, 2003**

(54) **VEHICLE SEAT FRAME**

(56)

References Cited

(75) Inventors: Ralf Kämpfer, Hecssen (DE); Norbert Kielsmeier, Obernkirchen (DE)

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(73) Assignee: Faurecia Autositze GmbH & Co., KG (DE)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: 09/846,594

Primary Examiner—Milton Nelson, Jr.

(22) Filed: May 1, 2001

(74) Attorney, Agent, or Firm—Bourque & Associates, P.A.

(65) **Prior Publication Data**

US 2001/0052724 A1 Dec. 20, 2001

(57)

ABSTRACT

(30) **Foreign Application Priority Data**

Jun. 15, 2000 (DE) 100 29 551

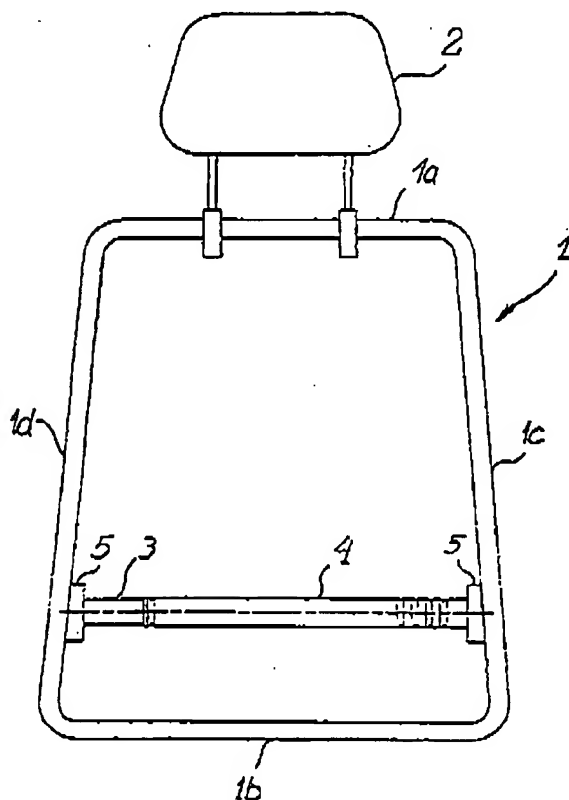
(51) Int. Cl.⁷ B60N 2/42

(52) U.S. Cl. 297/216.13

(58) Field of Search 297/216.13, 216.14,
297/452.2, 452.18, 452.4

A crosspiece for the frame of a vehicle seat that includes a supporting surface for the occupant. A crosspiece is formed as an element that shortens by a preset amount along its longitudinal dimension when a load is imposed up to a threshold value. The crosspiece includes an intentional bending point that bends perpendicular to the longitudinal direction when the threshold value is exceeded so that the crosspiece does not move in the direction of the supporting surface.

11 Claims, 6 Drawing Sheets





US006817672B2

(12) **United States Patent**
Matsunuma

(10) Patent No.: **US 6,817,672 B2**
(45) Date of Patent: **Nov. 16, 2004**

(54) **SEATBACK FRAME FOR VEHICLE SEAT**(75) Inventor: **Noriyoshi Matsunuma, Ayase (JP)**(73) Assignee: **Johnson Controls Automotive Systems Corporation (JP)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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Primary Examiner—Peter M. Cuomo
Assistant Examiner—Stephen D'Adamo

(74) Attorney, Agent, or Firm—**Foley & Lardner LLP**(21) Appl. No.: **10/097,236**(22) Filed: **Mar. 13, 2002**(65) **Prior Publication Data**

US 2002/0135222 A1 Sep. 26, 2002

(30) **Foreign Application Priority Data**

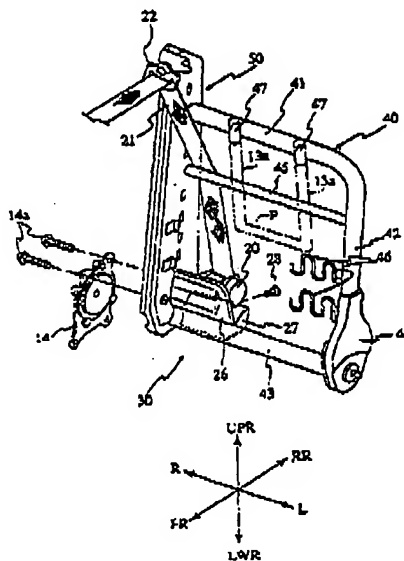
Mar. 23, 2001 (JP) 2001-085268

(51) Int. Cl.⁷ **B60N 2/44**(52) U.S. Cl. **297/452.18; 297/483**(58) Field of Search **297/188.04, 217.1, 297/468, 483, 474, 482, 486, 452.18, 452.2**(56) **References Cited****U.S. PATENT DOCUMENTS**

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(57) **ABSTRACT**

In a seatback frame for a vehicle seat having a seatback and a seat cushion and equipped with a seat belt of a three-point type, a pipe frame formed along an external shape of the seatback and a vertically extending tower frame located in the seatback at the same side as a belt-through member of the seat belt of the three-point type and fixedly connected to the pipe frame are provided. The tower frame includes an outer side bracket, an inner side bracket, both of which are formed of vertically extending, elongated metal sheers each formed in a substantially C-shaped cross section and both of which are coupled to one another in abutting engagement with one another to form an internal space, and an intermediate brace member incorporated in the internal space to provide a reinforcement rib structure.

3 Claims, 5 Drawing Sheets



US007215887B2

(12) **United States Patent**
Dudash et al.

(10) Patent No.: **US 7,213,887 B2**
(45) Date of Patent: **May 8, 2007**

(54) **ATTACHMENT OF HEAD REST GUIDE TUBE TO VEHICLE SEAT FRAME**

(75) Inventors: Eugene S. Dudash, Wixom, MI (US); Mark Stanisz, Waterford, MI (US); Eric A. Smittberg, Berkley, MI (US); L. Keith Hensley, Farmington Hills, MI (US); Sanford E. Cook, Belleville, MI (US); Kevin J. Fudala, Dearborn Heights, MI (US)

(73) Assignee: Lear Corporation, Southfield, MI (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 10/904,938

(22) Filed: Dec. 6, 2004

(65) Prior Publication Data

US 2005/0121955 A1 Jun. 9, 2005

Related U.S. Application Data

(62) Division of application No. 09/820,147, filed on Mar. 28, 2001, now Pat. No. 6,836,951, which is a division of application No. 09/014,875, filed on Jan. 28, 1998, now Pat. No. 6,223,436, which is a division of application No. 08/660,523, filed on Jun. 7, 1996, now Pat. No. 5,769,499.

(51) Int. Cl. **A47C 7/02** (2006.01)

(52) U.S. Cl. 297/452.18; 297/391; 297/404; 297/463.1; 297/410

(58) Field of Classification Search 297/404; 297/391; 452.18; 452.2; 410; 463.1; 463.2; 403/247; 372; 400; 388; 282; 256/22

See application file for complete search history.

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Primary Examiner—David R. Dunn

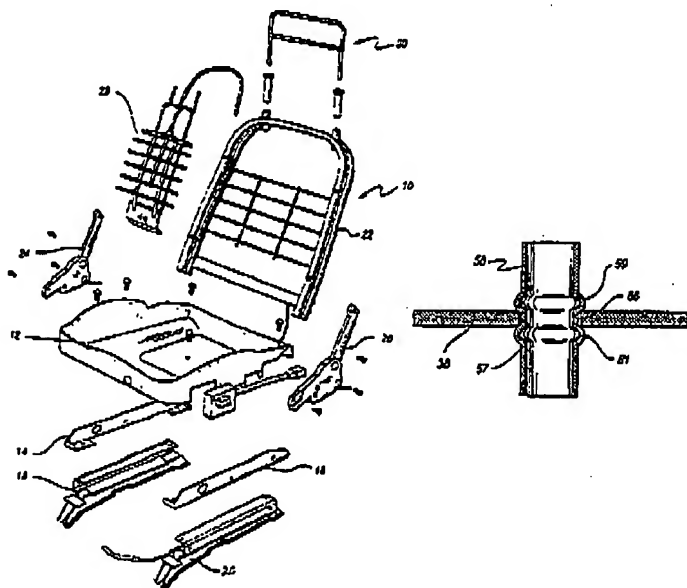
Assistant Examiner—Erika Garrett

(74) Attorney, Agent, or Firm—Brooks Kushman P.C.

(57) **ABSTRACT**

A vehicle seat assembly includes a seat back frame having an aperture extending therethrough, and a head rest guide tube disposed in the aperture. The guide tube has a radially extending swaged portion engaged with the seat back frame for securing the guide tube to the seat back frame.

30 Claims, 5 Drawing Sheets





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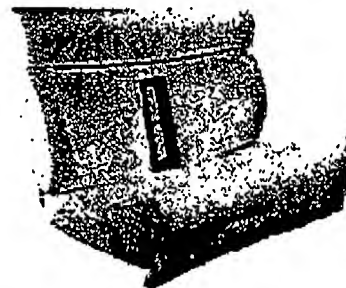
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Coupe frame with CFO

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16 Gauge Steel Frame
Reclining Mechanism
2-12 Volt Power Receptacles
No Sag Springs
Multi-density Foam Pack

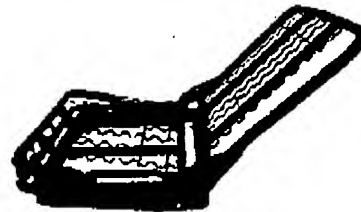
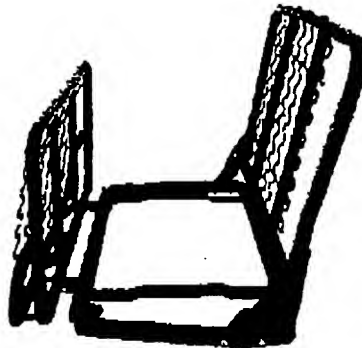


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Power Slides - Seat Heaters
3-point Seat Belt

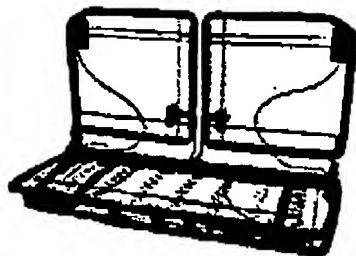
Dimensions | Pricing



35-48 FAT FENDER W/ BUCKET-STYLE SPLIT-BACK & CENTER FOLD-OUT ARM

Exhibit 3

http://www.wiseguys.com/catalog_packages/frame_from.html



Standard Features:

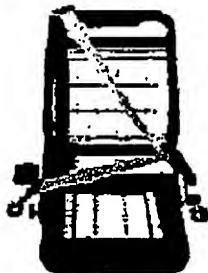
Center Fold Out Arms
4 Recliner Release Points
16 Gauge Steel Frame
2-12 Volt Power Receptacles
Foam Fabricated w/Multi-density Foam Types
No Sag Springs
Flexlator Backs

Options:

Manual 7" Slides
Six-way Power Pedestal
Power Lumbars
Seat Heaters
w/Hi & Lo Setting
Back and Seat Element

Dimensions | Pricing

19" & 21" BUCKET SEAT FRAME AND FOAM



21" 3-point Frame

Standard Features:
Reclining Mechanism
Multi-density Foam
16 Gauge Steel

Dimensions | Pricing

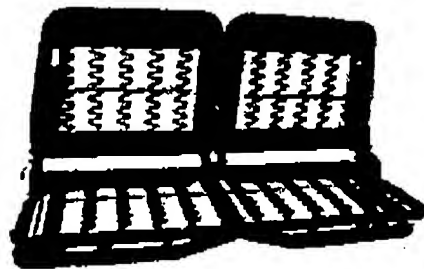


19" Reg Frame

Options:

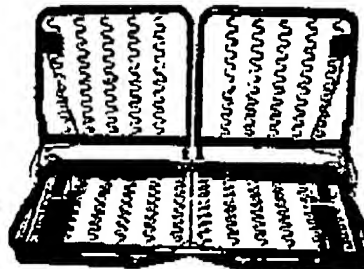
Seat Heat
Lumbar
Arm Rest
Head Rest
Manual Slides
6-way Power Slides
3-point Belt System

1955, 1956 & 1957 Chevrolet



55-56 Frame

Standard Features:
4 Recliner Release Points
2-12 Volt Power Receptacles
16 Gauge Steel Frame



57 Frame

Also Available Upholstered

Options:

Six-way Power Pedestal

Foam Fabricated w/Multi-density Foam
Types
No Sag Springs
Split Back
7" Slides
Risers

Power Lumbars
Seat Heaters
w/Hi & Lo Setting
Back and Seat Element
50's Pickup Style Frame

Dimensions | Pricing

50's Pickup Truck Seat Frame

62" Late-Forties to Mid-Fifties
57" Mid-Fifties to Late-Fifties



Also Available Upholstered

Standard Features:
Center Fold Out Arm
2 Recliner Release Points
2-12 Volt Power Receptacles
16 Gauge Steel Frame
Foam Fabricated w/Multi-density Foam Types
No Sag Springs
Split Back
7" Slides
Risers

Options:
Pedestal
Power Lumbars
Seat Heaters
w/Hi & Lo Setting
Back and Seat Element

Dimensions | Pricing

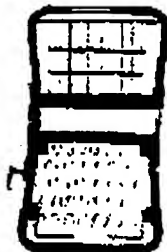
Adjustable Rear Bench Seat Frame



Standard Features:
16 Gauge Steel Frame
Foam Fabricated w/Multi-density Foam Types
No Sag Springs
Adjust Back from 42" to 55"
Adjust Seat from 45" to 56"
Adjustable Risers
3-point Seat Belts

Dimensions | Pricing

Corvette I Seat Frame



Dimensions | Pricing

Corvette II Seat Frame



Dimensions Pricing

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